Tiny devices to become big market

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Many of you probably think of the Internet as the World Wide Web, and think of the Web as a place to go surfing for information.

If so, you are missing the point. The Internet is about much more than surfing. Indeed, through the development of small Web servers and "embedded Internet controllers," the Internet is set to invade every aspect of our daily lives.

That's because there are lots of folks out there who are developing Web servers and other Internet devices that are really, really small. Some months back, the people at SlashDot (**www.slashdot.org** — a sited that promotes itself with the tagline, "News for Nerds. Stuff that matters.") wanted to find the world's smallest Web server — and seemed to do so in something called the iPic Web server.

The device billed itself as a complete computer no bigger than a matchbox, containing a CPU, memory and all the software necessary to let it function as a Web site.

SlashDot seemed to realize quickly that the iPic device may be a joke, which triggered a debate on its Web site. But the mere idea of a really small Internet device is intriguing, and is about to become a very, very big market.

Imagine a parking meter with a small Web server built in. What if it also had wireless Internet transmission capabilities? Municipalities could introduce Internet-linked parking meters that would let them easily monitor information on revenue collected by each one.

This would help them make better revenue forecasts and assist in guarding against fraud when the money is collected.

Science fiction? Not at all. Take a look at the iChip Internet Controller (**www.connectone.com**) and you'll find a company that has developed and is selling such technology.

Indeed, such technology is set to become quite common in the next few years — and there are plenty of practical applications. Think about the opportunities to use it within a factory or other buildings. Imagine modern heating, ventilation and air conditioning sensors that are equipped with Web access.

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Such devices could be monitored through a browser for operating efficiencies and for problem reporting. Manufacturing plants could be linked to a corporate intranet, allowing remote surveillance via a Web browser of important operating statistics and other information.

Not to mention the opportunities for interactive design. A company could link its computer-aided design systems directly to those of a supplier, controlling the design and manufacturing process of a plant thousands of kilometres away.

Far-fetched? Not at all. At an event in Austin, Tex., a few months back, I talked with people from Taiwan Semiconductor Manufacturing Co. about that type of thing happening in chip-fabrication manufacturing.

Then there are applications in the home. Forget the idea of a fridge with an Internet screen built in so that you can surf for groceries. That's one of the silliest technological examples I've ever seen. But that doesn't mean your fridge won't become part of the Internet.

I imagine the typical fridge in five or 10 years will have a tiny Web server built in, so that the manufacturer can easily check its operating status when you call for repairs.

Examples such as these aren't a stretch of the imagination. Over the next five to 10 years, we are going to see Web servers begin to appear in all kinds of household, industrial and office devices. The fact is, tiny Web servers and embedded Internet controllers aren't unique — visit **www.mycal.net/wsweb/links** and you'll find an extensive list of small Web servers.

Of course, things could get out of hand. Maybe one day, you will get up in the morning, step on your weigh scale and later find out that it has sent an e-mail to your fridge, telling it to stay closed that day.

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